ORIGINAL ARTICLE

Gender Differences in Video Game Characters' Roles, Appearances, and Attire as Portrayed in Video Game Magazines

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Abstract Video game characters have the potential to shape players' perceptions of gender roles. Through social comparison processes, players learn societal expectations of appearances, behaviors and roles. Forty-nine articles were coded from current U.S. gaming magazines, resulting in 115 coded characters. This content analysis of video game magazine articles investigated how characters are portrayed, focusing on gender differences. Males were more likely to be heroes and main characters, use more weapons, have more abilities, and were more muscular and powerful. Females were more often supplemental characters, more attractive, sexy, and innocent, and also wore more revealing clothing. Understanding these video game messages is an important first step in understanding the effects games and magazines may have on behavior and attitudes.

Introduction

Video games are the fastest growing media in the United States, with sales reaching $10 billion in 2004 (NPD Group 2005; Annual U.S. video game sales). An estimated 70% of America's youth has at least one game console in their home (Roberts et al. 1999). Additionally, nearly 80% of children regularly play video or computer games; children

between the ages of 2 and 17 play an average of 7 h a week (Gentle and Walsh 2002). With children experiencing so much game media, it is important to examine the messages presented in video games and the game magazines that many players purchase. One understudied area is the gender differences in the portrayal of characters.

This content analysis seeks to examine messages presented in video games by analyzing the content of video game articles from the three primary gaming console magazines in the United States—*Xbox*, *Playstation*, and *Nintendo Power*. Lengthy articles (at least one full page) will be chosen from each magazine in order to examine gender differences in characters. Specifically, characters within each article will be examined in terms of role, abilities, appearance, and attire. It is expected that there will be gender differences in each of these characteristics. This analysis will provide important information regarding gender differences in the portrayal of video game characters.

The rise of video gaming indicates thousands of youth are presented with this type of media every day. The current study seeks to fill in the gap of media effects research by examining video game magazine articles to determine gender differences in both the roles and the appearance of video game characters. Roles and abilities of characters will be examined, as previous research indicates that youth often consider fictional characters to be role models (McDonald and Kim 2001). If youth see video game characters as role models, then the roles of these characters must be examined, including any abilities that they might have. Additionally, characters in articles will be examined in terms of their appearance. As other forms of media have been shown to influence self-esteem and body perception (Bessenoff 2006; Morrison et al. 2004), understanding how characters appear in the games is also important. Therefore, both roles and appearance will be examined. Studying

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video game magazine articles is important because this is a separate media than the games themselves. Knowing what kinds of images video games articles portray is important, just as it is important to study other types of magazines, movies, songs, and other media. This study seeks to fill many gaps in our knowledge of media effects, as video game magazines have yet to be studied.

The Importance of Studying Video Games

Adolescents spend almost 7 h a day exposed to some form of media (Roberts 2000). Researchers have already discovered that other types of media, such as magazines (Carpenter 1998) and television (Milkie 1994), can play a role in socializing individuals as to appropriate gender behaviors. Specifically, exposure to media images has the potential to influence an individual's body image, self-esteem, self-perception, and expectations of the opposite gender (Barlett et al. 2005; Bessenoff 2006; Ward et al. 2005). For instance, social comparison processes can affect self-perceptions; individuals compare themselves to others in order to measure their own abilities and successes (Festinger 1954). Video games and game magazines provide youth with characters they can use to make social comparisons. If a player does not possess the same abilities or the appearance as the game character, the player's self-perception may suffer.

Understanding the messages of video games is important for both men and women, as media can influence both genders (see for example, Bessenoff 2006; Morrison et al. 2004). For example, media affects both males' and females' gender identity (Calvert 2001) and sexual behaviors (Strasburger 1989). Analyzing video game messages can be useful in identifying the gender roles and stereotypes presented therein. These stereotypic messages can affect society by communicating normative behaviors (Heath 1984) and shaping individuals' attitudes toward women (Ward et al. 2005). These messages could be particularly influential for young children who are currently developing their attitudes and expectations (Berry 2003). For example, video games that portray men as heroes and women as victims might impact the way game players view gender roles. Females might interpret this portrayal to mean that they lack the ability to be a hero or take care of themselves. Thus, video games provide children with images that may influence their sense of self and serve as role models for their behavior and identities (McDonald and Kim 2001).

With the increasing popularity of video games and the potential of these games to influence the behavior and self-concept of youth, it is important that researchers identify the common messages presented in video games. After these messages are understood, researchers can begin to determine the influence they have on children and youth.

Influence of Video Games and Other Media

As realistic video games are relatively new, little research has been conducted (except regarding video game violence) to determine the messages or impacts of video games on youth (Eastin and Griffiths 2006; Scharrer 2004). However, media influence has been of interest to researchers for some time, and research in this area can provide valuable insight into the potential effects of video games by identifying areas in which other mass media (e.g., television, movies, and music videos) have influenced individuals. Although media effects research has rarely been conducted on video games, it is possible that games will have the same or similar effects. Mass media studies are discussed to provide a broader scope of the important role the media plays on individual attitudes, as well as to highlight deficiencies in video game studies.

Mass Media Influence in General

Mass media has the potential to influence many behavioral social norms including self-esteem and body image (Bessenoff 2006; Morrison et al. 2004), gender identity (Calvert 2001), and sexual behaviors (Strasburger 1989). Women who are exposed to images of "ideal" (e.g., very thin) women in the media report increased levels of body dissatisfaction, negative mood and depression, and lower levels of self-esteem as compared to women who are not exposed to these images (Bessenoff 2006). The influence of the media on young women's body image have led researchers to speculate that media might also play an important role in negative behaviors such as eating disorders (Hesse-Biber et al. 2006).

Just as the media has the potential to impact females, it also has the potential to influence males. Men who view images of "ideal" (e.g., muscular) male actors and models have more negative body images and are more likely to try to gain weight or use steroids (Morrison et al. 2004) Additionally, males who are exposed to unrealistically muscular action figures (representing characters on television) report more negative attitudes toward their body image than males exposed to action figures with normal muscle mass (Barlett et al. 2005). Thus, media images affect both males' and females' behavior, body image and self-perception.

Additionally, viewing images of women portrayed as sex objects is related to the endorsement of gender stereotypes (Ward and Friedman 2006; Ward et al. 2005). For example, participants exposed to stereotypical music videos (i.e., women treated as sexual objects, sexual relationships as adversarial) were more likely to endorse traditional views about gender as compared to those who watched videos with non-stereotypical messages (Ward et al. 2005). These

traditional views included beliefs such as "males are better leaders than females." Thus, media images can encourage gender stereotypes and provide messages of "appropriate" gender role behavior.

Figures in mass media may also serve as role models for children, significantly impacting their development of beliefs, attitudes, and behaviors (Aubrey and Harrison 2004; Fraser and Brown 2002). Women and men are often portrayed in the media in stereotypic fashions, such as women doing housework and men engaging in sports or professional activities (Jaffe and Berger 1994). These characters model "appropriate" behaviors for young children and can impact children's beliefs about what is considered ideal behavior. From images such as these, female children might infer that women's roles are as housewives, impacting later decisions to attend college or choose a career. Without long-term studies, however, it is impossible to determine how much this might impact children later in life.

Video games have the potential to be more influential than other forms of media because of their engaging, interactive and repetitive nature (American Psychological Association 2006). For example, in the game Grand Theft Auto, the player can choose the behavior of the character. The player can make his character have sex with his girlfriend and then dismiss her or have sex with a prostitute and then kill her (Brathwaite 2007). Because the game is interactive in nature, the player chooses these behaviors, which is qualitatively different than other forms of media, such as movies, in which the individual is merely watching a character carryout these behaviors. Simply put, watching someone shoot another person is different from shooting the person yourself (using the video game controller trigger). Controlling the action gives the player the opportunity to engage in behaviors (via the video game) that he would or could not normally engage. If faced with a similar decision in adulthood (i.e., how to treat a significant other), the child might recall and imitate this experience.

The near virtual reality quality of many current games likely compounds these effects. Many games are so realistic that it is difficult to tell whether one is watching a movie or a game. Watching a cartoon character of previous generations is likely a different experience than watching a realistic looking character of the present time. Indeed, many new games (e.g., The Guy Game) include actual video clips of topless women. Other games (e.g., Street Racing Syndicate) portray real-life porn stars as main characters, and many (e.g., Playboy Mansion) allow the player to undress the women characters. Being able to interact with characters in this way is likely a different experience than simply watching a movie.

Understanding the messages that games send (e.g., the gender norms regarding appearance and abilities) is important as a first step in later determining the influence of games on children and youth. Whereas the research above is general to media, other research is more specific to video games.

Video Game Research

Video game researchers have found several reoccurring themes across studies. One is that male characters far outnumber female characters in video games (Beasley and Collins Standley 2002; Ivory 2006; Scharrer 2004). Even when women are present in the game, they are less frequently the playable character (i.e., a character that the game player can control) as compared to the male characters (Ivory 2006). The gender discrepancy itself offers messages to the youth who play the games; for instance, it may communicate that males are more important or interesting than females, and thus are portrayed more often. This difference could also be due to the fact that games are largely market towards men, as 88% of males identify themselves as game users compared to 67% of females (Funk 1993). Assuming that men want to play as male characters, it makes sense that games would have fewer female playable characters. On the other hand, it would seem that the gender discrepancy would be less pronounced in non-playable characters. This is not the case, as there are also fewer female non-playable characters.

The roles of female and male characters have been found to be quite different (Dietz 1998). Females are frequently portrayed in a sexy role or as a sex object in the games (Dietz 1998; Ivory 2006; Scharrer 2004) reinforcing gender stereotypes and potentially impacting attitudes towards women (see Ward et al. 2005). In addition to a sexy portrayal, women's attire in the video games reinforces sexual stereotypes (Beasley and Collins Standley 2002). Women are generally portrayed as less clothed than males, with females wearing smaller tops (Beasley and Collins Standley 2002; Scharrer 2004), and clothes that accentuate their sexuality (Beasley and Collins Standley 2002). Descriptions and portrayals of characters in games are also different for males compared to females. Females are portrayed as more attractive than males (Ivory 2006; Scharrer 2004) while males are portrayed as more muscular and powerful than females (Scharrer 2004). In sum, content analyses of video games and video game advertisements have consistently found that women are underrepresented, more frequently sexualized, more attractive, less powerful, and dressed more scantily than males (Beasley and Collins Standley 2002; Dietz 1998; Ivory 2006; Scharrer 2004).

The portrayal of video game characters is especially important because researchers have found that children consider video characters to be role models (McDonald and Kim 2001). In particular, middle school-aged children's

self-described ideal characteristics are similar to the characteristics of their favorite video game character. Children may also compare themselves to their favorite characters in terms of strength, height, and abilities. Lacking the strength, height and abilities of the character, they may feel that they are not as 'good' as the character, which could be damaging to their self-esteem (McDonald and Kim 2001). This research implies that their video game character may serve as a role model for their ideal behavior and characteristics.

Overview of Study

Previous research on video games has been limited in scope and the variety of games. Several researchers have randomly selected popular games to analyze (e.g., Beasley and Collins Standley 2002; Dietz 1998; Smith et al. 2003; Thompson and Haninger 2001). These researchers analyzed actual game play for a short amount of time (e.g., 10–20 min). Although playing the game allows for more detail in some areas, (e.g., characters' tone of voice), not all skills or characters are introduced in the first part of the game (e.g., characters can change appearance during game play).

An analysis of articles in video game magazines should contain more detailed information about the later parts of the game and more overall information about the game as compared to studies that analyzed game play. Prior research analyzing content of games has examined a few minutes of 20–55 games (e.g., Beasley and Collins Standley 2002; Dietz 1998; Thompson and Haninger 2001; Smith et al. 2003). These analyses only allowed for a small portion of the game to be reviewed. If the current analysis sought to examine the entirety of the game, it would have taken hundreds of hours of game play and an appropriate skill level. By examining the magazines, we were able to identify key characters and analyze the plots of 49 games and 300 characters (116 of which were in depth analyses). This larger sample allows for greater generalization of results.

In addition to previous studies examining a short amount of game play, others have examined advertisements. Scharrer (2004) compared portrayals of males and females in video game advertisements in three popular gaming magazines during a 6-month period. The current study, although similar, provides a somewhat different analysis. Instead of advertisements, researchers examined articles appearing in the "official" magazines of the three main video game consoles (Nintendo, Playstation, and Xbox) over a period of 3 years. Magazine editors likely choose these games because they were expected to be the most popular and are thus most likely to be the ones that influence the most players. Thus, the current sample contains only games most likely to have an impact.

This long time period (3 years) was needed because most magazines only contained a few long articles per issue. This time span also helps rule out any short-term trends (e.g., a number of highly violent or sexual games coming out in a 6-month period). A typical article contained descriptions of the goals and roles of the game, depictions of the characters, and tips on how to "succeed" in the game. Articles in the current study were one to seven pages in length, with the majority being over three pages long. Additionally, researchers were able to examine the roles, abilities and goals of characters by examining the text describing the game, in addition to how they looked. Thus, articles provide much more information than shorter advertisements, which tend to be a page or less and contain little or no text.

Research Question and Hypotheses

Although the majority of both males and females play games (Funk 1993), game manufacturers target a dominantly male audience (Scharrer 2004). Thus, games often emphasize violence and the attractiveness and sexuality of females (Ivory 2006). Past research has indicated that males and females are portrayed differently, with females portrayed as sexy and males portrayed as muscular (Beasley and Collins Standley 2002; Ivory 2006; Scharrer 2004). Roles are also very different; while men are typically muscular heroes (Scharrer 2004), many female characters are merely sex objects (Dietz 1998). Such research leads to a general research question and several specific hypotheses.

The research question investigates how characters are portrayed in games. In general, what abilities do characters have? What roles do they play? Are they portrayed as sexy, attractive or muscular? These analyses will provide an overall picture of how characters look and behave.

The purpose of Hypothesis 1 was to determine if there are gender differences in the roles and abilities of video game characters, as portrayed in video game magazines. Two related hypotheses are offered. Hypothesis 1a predicts that men will have different general roles (e.g., the role of a main character) and specific roles (e.g., soldier) than women. For instance, it is predicted that men will be heroes more often than females, while women will be supplemental characters (e.g., a character who helps the hero) more often than males. Hypothesis 1b states that men will have more abilities (e.g., fighting ability) and weapons than females.

Hypothesis 2 predicts gender differences in the appearance and attire of characters. Two specific hypotheses are offered. Hypothesis 2a predicts that men will be more muscular, evil, mad and powerful than women, while women will be more innocent, attractive, sexy, happy and helpless than men. Hypothesis 2b predicts that women

characters will wear more sexy and revealing clothing than male characters.

Method

Sampling

Magazines selected for inclusion in the analysis were *Xbox*, *Playstation*, and *Nintendo Power* magazines from 2003 to 2005. These magazines could be perceived as "authorities" more so than other gaming magazines because they are produced by the game console companies, and thus are likely more popular and influential than other magazines. These magazines are the only officially licensed United States game magazines, with circulation for *Xbox Magazine* reaching more than 400,000 in 2006, and *Playstation Magazine* running a close second with 305,000 total circulation for the same time (Future 2006). Game articles were chosen because they contained a sufficient amount of information; short articles (e.g., only one paragraph) were not selected. Game characters were also chosen if they contained enough information to code. Some characters were not selected because characters were not distinct and describable (e.g., if characters were never seen outside their racing cars). If there were many characters to choose from, coders chose two main males (determined by text or most common character shown in pictures) at random and all main female characters. Females were over-sampled to get an approximate equal number of males and females.

Coding

Six coders rated multiple characteristics of male and female characters. Coders were asked to determine the role of the characters in several ways. First, coders were asked to identify whether the character is the main character. Second, the coders were asked to identify the role of the character (e.g., hero, villain, or supplemental character). Coders selected all of the abilities the characters had from a list (i.e., flying, use of magic, use of fighting) and to quantify the number of abilities and weapons of each character. Finally, coders rated characters on 13 traits (e.g., sexy, muscular, innocent) using an eight-point scale (0–7). Four other questions measured the revealing nature of the character's attire, also on an eight-point scale.

The majority of items that were coded were selection items. Coders merely had to identify the item through the content or pictures of an article and circle it if it was included. For description items (i.e., traits), coders were told to base their coding on how a typical individual in American society would view the individual. For example, for ratings of sexiness, coders were told to rate how sexy they thought the individual appeared based on typical American standards, not their own perception. Coders were also given examples to help with the coding process. For example, attractive was coded based on 'socially acceptable attractiveness.' Examples were also provided to assist in coding other characteristics such as helpless (e.g., must be rescued), powerful (e.g., a fighter), and helpful (e.g., providing tips). The measuring how revealing the attire was asked coders to rate this characteristic on a scale from zero to seven with zero equal to 'only the face exposed' and seven equal to 'lots of skin showing.'

Three undergraduate students (ages 19 to 22), two graduate students (ages 24 and 27), and a professor (age 32) were trained to code the game articles. Four coders were females and two were male; five were white and one was a racial minority. Interrater reliability was calculated for approximately 10% of the total sample of characters (13 characters). Holsti's coefficient averaged 0.86 and ranged from a low of 0.62 for the attractiveness measure to 100% on other variables (see Table 1). Four variables (thin, helpful, happy, and tightness of clothing) were dropped from the analysis because of low interrater reliability.

Results

The first set of analyses was designed to answer the research question: How are characters portrayed overall? The second set of analyses addressed Hypothesis 1, which involved gender differences in the roles and abilities of characters. Finally, the third set of analyses deals with Hypothesis 2, which made predictions about gender differences in appearance of characters.

Research Question: General Portrayal of Characters

The research question asks how characters in general are portrayed in games. For example, what are their ethnicities and abilities? Are they very sexy, attractive or muscular? Thus, the first set of analyses provides a general picture of how characters are portrayed. Of the 49 games included in the analysis, 282 male humans and 53 female human characters appeared, indicating 1 female for every 5.3 male characters. Based on the criteria discussed above, 62 males and 53 females were compared. Results indicate that there were no ethnic differences in male and female characters, likely due to the low number of minorities represented in the games. Also, across genders, most (79.1%) of the characters had at least one ability, such as flying or super speed, ($M=1.31$), and 32.3% had more than one ability.

Absolute values of scores, in addition to gender differences, provide information as to the overall portrayal of males and females in games. Results indicated that males

Table 1 Holsti's coefficient of reliability for all factors.

Variable	Holsti	Variable	Holsti
Gender of main character	.92	Is character main character	.92
Role of character	.92	Ethnicity of character	.92
Character's looks: muscular	.69	Character's looks: sexy	.85
Character's looks: attractive	.62	Character's looks: thin[a]	.46
Character's looks: powerful	.77	Character's looks: helpless	.85
Character's looks: helpful[a]	.54	Character's looks: evil	1.00
Character's looks: happy[a]	.54	Character's looks: mad	.69
Character's looks: carefree	.85	Character's looks: innocent	.69
Character's looks: afraid	.67	Character's ability: invisible	1.00
Character's ability: speed	.85	Character's ability: martial arts	1.00
Character's ability: skate/board/bike	1.00	Character's ability: team sports	1.00
Character's ability: flying	.92	Character's ability: magic	1.00
Character's ability: using weapon	.85	Character's ability: swim	.92
Number of abilities	.92	Character weapon: gun	.92
Character weapon: knife	1.00	Character weapon: fire	.77
Character weapon: grenade	1.00	Character weapon: fighting	.98
Character weapon: ice	1.00	Character weapon: tank	1.00
Character weapon: bow and arrow	1.00	Character weapon: magic	1.00
Character weapon: poison	1.00	Character weapon: rope	1.00
Number of weapons	.92	Character's clothing	.92
Overall clothing revealing	.85	Clothing revealing upper body	.85
Clothing revealing lower body	.85	Overall, clothing tightness[a]	.54
Overall Holsti coefficient	.86		

[a] Item not used in analyses.

were rated an average of 4.5 (out of 7) on muscular, with 70.7% of characters scoring above the midpoint on the scale. Similarly, males scored 5.10 (out of 7) on the "powerful" scale, with 84.5% of all males scoring above the scale's midpoint. Females averaged 4.29 (out of 7) on the "sexy" dimension, with 66.7% scoring above the scale's midpoint. Females were also portrayed as very attractive; the average score was 4.9 (out of 7), and 88.5% scored above the scale's midpoint. Similarly, 65.9% of female characters scored high (above the mid point) on overall revealing scores of attire. The average score was 4.12 (out of 7), indicating that most of the women were scantily clad. These findings indicate that the majority of male characters are portrayed as quite muscular and powerful, while the majority of females were portrayed as sexy and attractive. Comparisons between genders found significant results for both hypotheses.

Hypothesis 1 Gender Differences in Roles and Abilities

The purpose of Hypothesis 1 was to examine gender differences in the roles and abilities of video game characters. Hypotheses 1a and 1b were both generally supported.

Hypothesis 1a

It was expected that male characters would have different roles (e.g., the role of a main character) in the game than females. Overall, hypothesis 1a was partially supported. In 51% of the games, men were playable, in 26.5% of the games females were playable and 10.2% of the games allowed the player to choose to play as either the male or female. For the remainder of the games, the playable character was unknown or a nonhuman of uncertain gender. Half of the male characters were the main character of the game, significantly more than females, (19.2%; $X^2 = 12.63$, $p < .01$). Although it was hypothesized that men and women would play different specific roles (e.g., men would more often be soldiers than women), analyses found no significant differences in the soldier, superhero, or detective roles, likely because of the low frequency of these roles characters coded in the games.

It was expected that men would be more often heroes, while women would be supplemental characters (i.e., secondary to the main character, with a lesser role). Coders rated each character as either hero, villain, supplemental or other. Results confirmed the hypothesis; males were heroes 58.1% of the time, significantly more than females (34.6%; $X^2 = 21.41$, $p < .01$). Additionally, 14.5% of males were supplemental characters, a significantly lower amount than females (30.8%; $X^2 = 12.08$, $p < .01$).

Hypothesis 1b

It was expected that male characters would have more abilities and weapons than female characters. Hypothesis 1b was partially supported. Overall, significantly more males (83.9%) used weapons than females (43.4%; $X^2 = 20.63$, $p < .01$). Specifically, 58.1% of male characters and

30.2% of female characters used a gun in the games ($X^2 =$ 8.96, $p<.01$). Other than use of guns, there were no significant gender differences in types (e.g., fire, knives, ice) or number of weapons used by the characters. There were no significant gender differences in abilities such as invisibility, super speed, martial arts, flying, or using magic likely due to the infrequency of the these abilities in the games. Overall, males ($M=1.6$) had a significantly greater number of abilities than females ($M=1.0$; $F (1,113)=4.92$, $p<.05$).

Hypothesis 2 Differences in Appearance and Attire

The purpose of Hypothesis 2 was to determine whether there are gender differences in the appearance and attire of characters. Both Hypotheses 2a and 2b were generally supported.

Hypothesis 2a

It was expected that there would be differences in the appearance of characters. For example, men would be more muscular, evil and powerful, while women would be more innocent, attractive, sexy, and helpless. Results supported hypothesis 2a; there were significant appearance differences for males and females based on scores on an eight-point scale with (0="not at all" to 7="very"). Males were significantly more muscular ($F(1,104)=44.23$, $p<.00$) and powerful ($F(1,109)=14.19$, $p<.00$) than females. Females, on the other hand, were significantly more attractive ($F (1,95)=16.69$, $p<.01$), sexy ($F(1,95)=52.2$, $p<.00$), helpless ($F(1, 97)=10.21$, $p<.01$), and innocent ($F(1,85)=$ 9.08, $p<.01$) than male characters. Other differences in appearance (i.e., evil, mad, carefree and afraid) were not significantly different between males and females. Means are presented in Table 2.

Hypothesis 2b

It was expected that women characters would wear more sexy and revealing clothing than men. Results support hypothesis 2b. Sexiness and revealing nature of clothing was measured on an eight-point scale (0="not at all" to 7="extremely"). Female characters' clothing was significantly more revealing ($M=4.12$) than male characters' ($M=1.3$; $F(1,95)=42.30$, $p<.00$) overall. Specifically, clothing on the females' upper bodies was more revealing ($M=4.10$) than males' clothing ($M=1.54$; $F (1,97)=27.98$, $p<.00$) and females' lower body clothing was more revealing ($M=3.29$) than males' ($M=.67$; $F(1,84)=$ 30.78, $p<.00$).

Additionally, clothing differences were found between male and female characters. Males were more likely to wear army attire (30.6%) as compared to females (7.5%; $X^2 =$

9.53, $p<.01$). Females were more likely to wear tank tops (22.6%) than males (6.4%; $X^2=6.25$, $p<.05$). Other clothing differences that were not significant include regular clothing, suit, fighting uniform, medieval clothing and space age clothing.

Discussion

Video games are an increasingly popular form of media that could play a key role in influencing youth by portraying attitudes and behaviors that young children might identify with and adopt as their own. As such, it is important to study the messages that games send. Analyzing magazine articles provides more detail than analyses of either brief game play or advertisements used in past studies (e.g., Dietz 1998; Scharrer 2004), and thus allowed for greater exploration into the roles and appearances of characters.

Results of the content analysis revealed significant gender differences in portrayal of video game characters. Supporting earlier findings, male characters outnumbered female characters (Beasley and Collins Standley 2002; Dietz 1998; Ivory 2006; Scharrer 2004) and males were more often playable characters as compared to females (Ivory 2006). Males were also more frequently the hero of the game, and had more weapons and abilities than females. Females, on the other hand, were more often supplemental characters in games.

Results confirmed that there were also gender differences in appearance and attire. Results support the findings of previous research that found that males were portrayed as more powerful than females (Dietz 1998; Ivory 2006; Scharrer 2004) and females were portrayed as sexier and more attractive (Ivory 2006) as compared to males. Females were also likely to be wearing more revealing clothing than males, which supports previous research that indicated that women are often portrayed less clothed than males (Beasley

Table 2 Gender differences in the mean scores of character appearances.

Appearance	Males Mean	Females Mean
Muscular	4.33	2.04**
Powerful	5.10	3.51**
Sexy	1.15	4.29**
Attractive	3.22	5.00*
Helpless	.05	.54*
Innocent	.27	1.30*

Characters were coded on an eight-point scale with 0=not at all and 7=extremely.
*$p<.01$
**$p<.001$

and Collins Standley 2002). Men were also more muscular, while women were more sexy, helpless and innocent.

Because video games (and the magazines that describe games) have the potential to influence the behaviors and attitudes of America's youth, it is important to recognize the messages these media present. The portrayal of males as powerful and muscular and females as attractive, sexy and helpless has implications for self-esteem and body image in both males and females. If females consider the female character a role model, they may seek to emulate the character in terms of her sexy appearance or attire, which can be damaging to self-esteem, and also might contribute to ailments such as eating disorders. Prior research supports this conclusion that media can affect self-esteem (Bessenoff 2006).

Similarly, male players may feel inferior after comparing themselves to unrealistically muscular and powerful male characters. This may result in a more negative self-esteem body image, which could encourage the use the steroids or other extreme measures intended to help develop a muscular physique. Another potential concern is that the majority of characters had at least one special ability (e.g., super speed, fighting ability). Thus, players who compare themselves to these characters may see themselves as less talented, which could possibly be damaging to self-esteem. This is possible, as research has already demonstrated that exposure to unrealistic musculature can damage self-esteem (Barlett et al. 2005).

The findings also have implications for the development of gender roles and attitudes. For instance, males exposed to this stereotypic portrayal of females as helpless sexual objects might adopt negative attitudes toward women. Similarly, it may affect female's perceptions of how they should act. For instance, females may get the impression that women are helpless and need to be rescued by men. In addition, it may be discouraging to females that there are few female characters in games and fewer still female heroes. Both male and female characters might take this to mean that women are insignificant or incapable of being a hero. This means that women will have to idealize male characters or endorse the more stereotypic female portrayals (e.g., the female acting as a supplemental character that helps the male hero).

Limitations

This study has several limitations that are worthy of noting. One primary concern is that the games were not watched or played, thus the researchers were limited to the information and photographs that were present in the magazine article. The magazine authors were limited as to how many pictures and descriptions they could include. As a result, not all characters in every game are depicted and analyzed. In order to analyze every character in the game, it would be

necessary to play the entire game. Even then, all characters might not appear, as many games require players to make decisions that impact the game's direction (i.e., a player makes decisions that affect whether or not another character appears). Many new games take a great deal of time to complete (some over 100 h of game play). Purchasing all 49 of the games and three game consoles would be quite expensive. Thus, time and cost restraints make articles the ideal choice for analysis.

Additionally, characters may change in appearance and ability during the course of the game. Some games allow the player to choose if he wants to be good or evil, and other games allow the character to grow stronger over time. The authors of these articles typically portray the character at only one or two points in time and thus may not portray an accurate picture of the character at every stage of the game. Similarly, the editors may choose not to reveal details about certain parts of the game (e.g., the surprises revealed at the end of the game) to avoid giving away information that would make players less likely to buy the game (since they already know how it ends). Thus, this study has some of the same limitations as previous studies that analyzed only advertisements or brief game play. Such limitations are impossible to overcome for several reasons. For instance, we cannot control the editors' choices (e.g., which games or photographs to include), nor can we feasibly play every game in its entirety.

The limited racial, age and gender variation in coders also creates a limitation. Coders ranged in age from 19 to 32, 33% were male, and 83% were Caucasian. Because age, gender and race can affect perceptions, the limited variability in coders could represent a bias in the coding. In the ideal world, coders would have greater range of age and race and contain a more even split in gender.

Another limitation is that researchers could only code the games that were presented in the game magazines. These game magazines only have reviews of the games that the editors choose and may exclude games that would significantly impact the results. If the authors of these articles have a bias (e.g., preferring to show only the women characters who wear very little clothing), then this bias is also in the study. On the other hand, these magazines are probably influential in determining which games are popular. Thus, the games coded have a higher probability of being played more frequently and thus are more likely to impact the perceptions of youth than the games not present in the magazines.

Conclusions

The results of the current study revealed significant gender differences in the portrayal of video game characters in

game magazines. In general, males were more likely to be heroes and main characters, while women were more often supplemental characters. Males used more weapons and had more abilities than women. Male characters were more muscular and powerful, while females were more attractive, sexy, helpless and innocent. Females also wore more revealing clothing on both the upper and lower body. Males were more likely to wear army attire, while females were more likely to wear tank tops. Absolute values of ratings indicate that men are portrayed as very powerful and muscular, whereas women were portrayed as very sexy and attractive. Finally, a majority of women were dressed in a very revealing manner.

Previous research on the effects of other media indicates that media messages can be harmful in a number of ways. For instance, exposure to "ideal" males and females can negatively impact self-esteem (Barlett et al. 2005; Bessenoff 2006) and exposure to negative images of women is associated with endorsement of gender stereotypes (Ward and Friedman 2006). Video games could have even greater impact than other media because of the interactive nature of video games (APA 2006). Thus, it is important to understand the messages conveyed in these games and game magazines in order to someday understand the impact of these messages on behavior and attitudes.

Future research needs to address how video game characters have changed over time. A longitudinal content analysis would reveal changes in characters roles and abilities. Also, much more research needs to be conducted in order to determine the impact that video games have on players' body image, role expectations, attitudes toward women, and sexual stereotypes. While much research is still needed, this study provides evidence that male and female characters are portrayed very differently in games. Future research should identify the impacts of these gender differences on players.

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